

## ABSTRACT

**[0015]** An embodiment of a conversion apparatus improves the speed of color space conversion while using the output of a Winograd inverse DCT algorithm. The conversion apparatus includes a normalization and clipping block to convert the YCaCb data generated from the inverse DCT operation. In addition, the conversion apparatus includes a color space conversion block that performs a color space conversion, using matrix multiplication, on the output of the normalization and clipping block.

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